

## DESCRIPTION AND RATING

The 12AF6 is a miniature pentode intended for use as a radio-frequency or intermediate-frequency amplifier in automobile radio receivers. The tube is specially designed to operate with plate and screen voltages supplied directly from a 12-volt storage battery.

### GENERAL

#### ELECTRICAL

Cathode—Coated Unipotential	
Heater Voltage, AC or DC	12.6* Volts
Heater Current	0.15 Amperes
Direct Interelectrode Capacitances†	
Grid-Number 1 to Plate, maximum	0.006 $\mu\mu\text{f}$
Input	5.5 $\mu\mu\text{f}$
Output	4.8 $\mu\mu\text{f}$

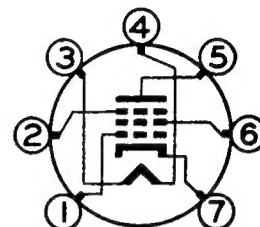
#### MECHANICAL

Mounting Position—Any  
Envelope—T-5½, Glass  
Base—E7-1, Miniature Button 7-Pin

\* When used in automotive service from a 12-volt source, under no circumstances should the heater voltage be less than 10.0 volts or more than 15.9 volts. These extreme variations in heater voltage may be tolerated for short periods; however, operation at or near these absolute limits in heater voltage necessarily involves sacrifice in performance at low heater voltage and in life expectancy at high heater voltage. Equipment reliability can be significantly increased with improved supply-voltage regulation.

† Without external shield.

### BASING DIAGRAM

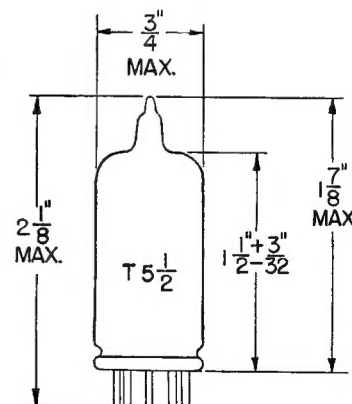


RETMA 7BK

### TERMINAL CONNECTIONS

- Pin 1—Grid Number 1
- Pin 2—Internal Shield and Grid Number 3 (Suppressor)
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—Plate
- Pin 6—Grid Number 2 (Screen)
- Pin 7—Cathode

### PHYSICAL DIMENSIONS



RETMA 5-2

**MAXIMUM RATINGS**

**DESIGN-MAXIMUM VALUES**

Plate Voltage . . . . .	16 Volts
Screen Voltage . . . . .	16 Volts
Positive DC Grid-Number 1 Voltage . . . . .	0 Volts
Heater-Cathode Voltage	
Heater Positive with Respect to Cathode . . . . .	16 Volts
Heater Negative with Respect to Cathode . . . . .	16 Volts
Grid-Number 1 Circuit Resistance . . . . .	2.2 Megohms

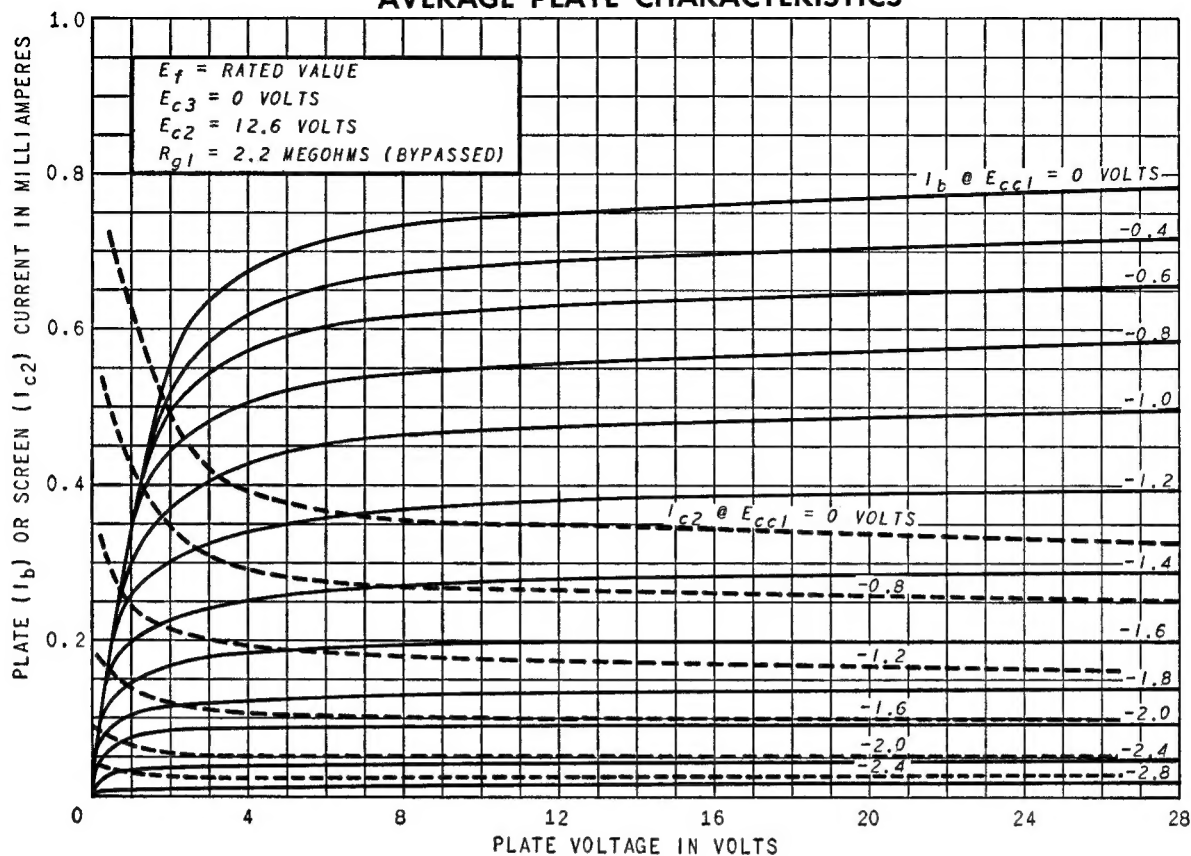
Design-Maximum Ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur. To obtain satisfactory circuit performance, therefore, the equipment designer must establish the circuit design so that no design-maximum value is exceeded with a bogie tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, and environmental conditions.

**CHARACTERISTICS AND TYPICAL OPERATION**

**CLASS A<sub>1</sub> AMPLIFIER**

Plate Voltage . . . . .	12.6 Volts
Suppressor Voltage . . . . .	0 Volts
Screen Voltage . . . . .	12.6 Volts
Grid-Number 1 Supply Voltage . . . . .	0 Volts
Grid-Number 1 Resistor (bypassed) . . . . .	2.2 Megohms
Plate Resistance, approximate . . . . .	0.3 Megohms
Transconductance . . . . .	1150 Micromhos
Plate Current . . . . .	0.75 Milliamperes
Screen Current . . . . .	0.35 Milliamperes
Grid-Number 1 Voltage, approximate	
G <sub>m</sub> = 40 Micromhos . . . . .	-2.7 Volts

# **AVERAGE PLATE CHARACTERISTICS**



# **AVERAGE TRANSFER CHARACTERISTICS**

